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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/500,353

06/25/2004

Rainer Durth

5028.1004

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01/30/2007

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EXAMINER

KITOV, ZEEV V

ART UNIT

PAPER NUMBER

2836

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

01/30/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/500,353	DURTH ET AL.	
	Examiner	Art Unit	
	Zeev Kitov	2836	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 1/8/07.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 15, 17 - 25, 30, 31, 33 - 36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 15, 17 - 25, 30, 31, 33 - 36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Examiner acknowledges a submission of the amendment and arguments filed on January 8, 2007. Claims 26 - 29 are deleted; Claims 15, 19, 21, 23, 30, and 33 are amended. New Claims 34 - 36 are added.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 15, 19, 20, 23, 30, 33, and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant Admitted Prior Art (AAPA) in view of Beeken et al. (US 4,760,486). Regarding Claims 15 and 30, AAPA discloses a first overvoltage protection element (the leftmost element in Fig. 1a) connected in a first leg of the power supply system; and a second overvoltage protection element (second from the left element in Fig. 1a) connected in a second leg of the power supply system. It further admits [0032] that the ignition 6 used in each of the protection elements is known per se in the prior art. However, it does not disclose an ignition connection. Beeken et al. disclose plurality of the overvoltage protection elements (V1 - V2 in Fig. 1) connected to each other through the ignition connection (R1 - R4, D3 in Fig. 1). In the Beeken et al. protection circuit ignition of the first protection element by its ignition aid (U, R11, R9,

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R10, D7 in Fig. 1) causes the second protection element to ignite by its aid (R1 – R4, D3 in Fig. 1), via ignition connection (col. 2, lines 34 – 40, col. 2, line 62 – col. 3, line 58). The reference has the same problem solving area, namely providing an overvoltage protection by spark gap devices. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the AAPA solution by adding the ignition connection according to teachings of Beeken et al., because as Beeken et al. state (col. 1, lines 11 – 38), such solution makes possible to take care of voltage higher than individual protection element can withstand.

Regarding Claims 19, 33 and 35, AAPA discloses the first and the second protection elements, each having two electrodes with a breakdown spark gap therebetween (Fig. 1a).

Regarding Claim 20, Beeken et al. discloses the first ignition electrode with the circuit connected to the electrode (U, R11, R9, R10, D7 in Fig. 1) and the second ignition electrode with the circuit connected to the electrode (R1 – R4, D3 in Fig. 1). A motivation for modification of the primary reference is the same as above.

Regarding Claim 23, Beeken et al. discloses the first ignition aid is configured to ignite the first air breakdown spark gap, and the second ignition electrode aid configured to ignite the second air breakdown spark gap (see above Claim 15 rejection).

Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA in view of Beeken et al. and Cook (US 4,683,514). As was stated above, AAPA and Beeken et al. disclose all the elements of Claim 30. However, regarding Claim 31, they

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do not disclose a low voltage system. Regarding Claim 31, Cook discloses the low voltage system (col. 1, lines 22 – 31). The reference has the same problem solving area, namely providing an overvoltage protection by using spark gap devices. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the AAPA and Beeken solution by applying it to the low voltage systems, because it would provide extended market for the system.

Claims 17, 18, 21, 34 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA in view of Beeken et al. and Maurer (US 2,143,992). AAPA and Beeken disclose all the elements of Claims 15 and 30. However, regarding Claims 17, 21 and 34, they do not disclose a central ignition aid circuit. Maurer discloses the central ignition circuit (extreme right element inside P6 in Fig. 6) connected to a first and a second ignition electrode (elements E in Fig. 6) and the first ignition electrode cooperating with the first overvoltage protection element and the second ignition electrode cooperating with the second overvoltage protection element. The reference has the same problem solving area, namely providing an overvoltage protection by spark gap devices. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the AAPA solution to include the central ignition aid circuit according to teachings of Maurer, because as Maurer states (col. 1, lines 13 – 33) for effective protection of railway power supply system plurality of railway power supply tracks must be grounded simultaneously.

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Regarding Claim 36, the central ignition circuit is configured to ignite the first ignition electrode (extreme left element E in Fig. 6). A motivation for modification of the primary reference is the same as above.

Regarding Claim 18, Maurer discloses plurality of overvoltage protective elements disposed in a common housing (P6 in Fig. 6). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the AAPA solution by disposing a plurality of the overvoltage protective elements in the common housing according to teachings of Maurer, because (i) it will help to ignite the devices one from another, and (ii) it will reduce cost of the system.

Claims 22, 24 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA in view of Beeken et al. and Hill et al. (US 3,878,423). As was stated above, AAPA and Beeken et al. disclose all the elements of Claims 15 and 19. However, regarding Claims 22, 24 and 25, they do not disclose coaxially disposed electrodes. Hill et al. disclose a surge-protecting device having the coaxially disposed electrodes with varying cross-section over a length of the electrode (84 and 82 in Fig. 5). In the AAPA system modified according to Beeken et al. and Hill et al., both the first and the second electrodes as well as the third and the fourth electrodes will be coaxially disposed and will have respective varying cross-section over a length of the respective electrode. Both references have the same problem solving area, namely providing the surge-protecting device by using the arc gap technology. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have

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further modified the AAPA solution by adding the coaxially placed electrodes with varying cross section according to Hill et al., because as Hill et al. state (col. 6, lines 20 – 29, 41 – 63), such structure has advantage of minimizing the amount of sputtered material thus extending the lifetime of the device.

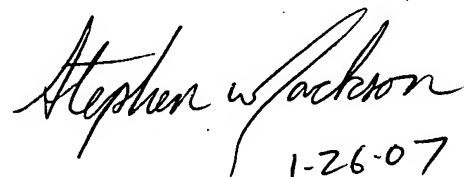
Response to Arguments

Applicant's Arguments have been given careful consideration but they are moot in view of new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zeev Kitov whose current telephone number is (571) 272 - 2052. The examiner can normally be reached on 8:00 – 4:30. If attempts to reach examiner by telephone are unsuccessful, the examiner's supervisor, Brian Sircus can be reached on (571) 272 – 2800, Ext. 36. The fax phone number for organization where this application or proceedings is assigned is (571) 273-8300 for all communications.

Z.K.
1/24/2007



1-26-07

STEPHEN W. JACKSON
PRIMARY EXAMINER